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A State Publication For North Carolina's
Computer And Telecommunications Professionals

VOLUME 1 SPRING 1990

First Annual Executive Technology Conference Held

State Information Processing Services and the Information Technology Commission hosted the first annual Executive Technology Conference on September 28, 1989, at the Microelectronic Center in the Research Triangle Park. The purpose of the conference, according to State Controller Fred Talton, was to bring "together some of the top minds of information technology in the United States to discuss current topics relating to the management of electronic information."

Several prominent dignitaries attended, including members of the General Assembly, state government department heads, university chancellors, the Governor's Committee on Data Processing and Information Systems, and the members of the MCNC Board of Directors.

The attendees were welcomed to the conference by Mr. Talton: "We hope that this interaction provides all of [the attendees] with an opportunity to better understand information management and to comprehend its important impact on your organizations," he said. "Perhaps it will leave you with some information, and some thoughts and ideas that you will carry back to your own organizations.

"The legislature has wisely chosen to create the Information Technology Commission," Mr. Talton told the conference. "The Commission works closely with the State Information Processing Services (SIPS). The Commission has the responsibility to approve the proposals of SIPS and to act on their recommendations."

Then, Lieutenant Governor James Gardner greeted the attendees on behalf of Governor Martin and expressed the Governor's regrets at not being able to

(see EXECUTIVE, page 2)

Governor Martin signs IRM policies agreement
(story on page 2)

LRIS BECOMES CGIA

In the on-going restructuring of state government, the Land Resources Information Service has changed its name. As of January 11, 1990, the Land Resources Information Service (LRIS) has become the Center for Geographic Information and Analysis (CGIA) in the Division of Statistics and Information Services, which is under the Assistant Secretary for Administration of the Department of Environment, Health, and Natural Resources.

Karen Siderelis, the director of the LRIS, is now the director of the CGIA. The telephone number, physical location, and mailing address for the CGIA is the same as for the LRIS; and the focus of the CGIA remains to provide geographic information system (GIS) support for agencies in North Carolina.

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IRM POLICIES ADOPTED

At their October meeting the Information Technology Commission formally adopted a set of policies for the management of information technology resources in state government. Doug Deaton and his staff at SIPS worked on the preparation of these policies for approximately nine months in cooperation with all state agencies, and they have distributed the policy manuals to all members of the Information Technology Commission and the SIPS Advisory Board.

The IRM policies are the statement of intent of the Information Technology Commission with respect to the management of voice, data, and visual electronic information. The policies are the key component of the IRM Policies and Procedures manual which defines the responsibilities, authorities, and standards for information resource management by state agencies. They cover the full scope of information management and address such topics as resource acquisition, shared and distributed processing, applications development, security, and disaster recovery.

According to Mr. Deaton, the manual is one of three documents which delineates the responsibilities and authority of information resources management and allows, within proper guidelines, the state agencies to plan their own method of managing their information resources.

The "IRM Statement of Strategic Direction" document, published annually, establishes the current emphasis of the Information Technology Commission on policy compliance and sets directions for the use of new technologies. Each agency uses the strategic direction document and the "IRM Policies and Procedures Manual" to form their own

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COMPUTER CENTER GOES ROBOTIC

The State Computer Center on the first floor of the SIPS Building has conducted a four-month test of the Memorex Telex 5400 automatic tape library (ATL). According to Memorex Telex, "the ATL combines automated cartridge handling with sophisticated library management software."

A showcase, the Memorex Telex 5400 ATL is thought to be only one of three in the United States and has generated interest from as far away as Australia. Installed by Walter Langley, the automatic tape library cost approximately $900,000. It is 54 feet long, 6 feet tall, and 4 feet wide; and inside are two robots nicknamed Henry and Ernie.

Henry and Ernie—named for Henry Murray and Ernie Sherrell, SIPS's Computer Operations Managers—are thin elevators called accessors. They have mechanical grips and move back and forth down a narrow access way.

When someone needs information, the request is entered, and either Henry or Ernie slides down the access way, retrieves the appropriate cartridge with its grips, slides back to a vacant cartridge drive (the ATL in the State Computer Center has 16 tape drives) and mounts the cartridge into the drive. It takes each accessor about 11 seconds to mount the request or 22 seconds to both mount and return the cartridge. In comparison, it takes a human about a minute and a half to retrieve, mount, and return the cartridge.

Generally, one accessor works the left side of the ATL, and one works the right side. Yet, if Henry is hurt and cannot do its job, Ernie will push Henry out of the way and work both sides of the ATL until Henry is fixed.

To make the system work, the State

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Executive

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attend the conference himself. The Governor, Mr. Gardner explained, was at President Bush's recently planned Education Summit in Charlottesville, Virginia.

Mr. Gardner introduced Terry Lautenbach, IBM Senior Vice President and General Manager of IBM United States: "we were looking for someone who had a global perspective on the computer and telecommunications industries, was an expert on today's revolution in high technology, and had a keen vision and insight into the course of information over the next decade. We found that person in Terry."

Mr. Lautenbach gave the keynote address: "The Effect of Information Technology on Organizations Over the Next Decade." He told the conference, "You'll see widespread use, very widespread use, of personal computers capable not only of high-quality graphics, but full-motion video and audio fidelity comparable to that of the CDs that you probably have in your home.

"You'll see electronic books — that is, personal computers about the size of a binder — with flat, high-resolution displays with a lot more functions than

(see EXECUTIVE,page 7)

SIPS HOSTS TELECOMMUNICATIONS CONFERENCE

On January 31, 1990, State Telecommunications Services hosted SIPS's first annual Telecommunications Conference at the Mission Valley Inn in Raleigh. More than 70 people attended.

As Sam Rule, Director of State Telecommunications Services, described it, the conference was held to respond to a request from the SIPS Advisory Board to have more information on telecommunications services and direction.

"The conference served as an information exchange forum. Our clients need to know what our plans are and what our philosophies are; because we're here to aid them and to assist them and to be a benefit to them."

The conference attendees watched a ten-minute video that showed the future use of fiber optics in the home. Then, each Telecommunications Section reported on their activities, duties, and responsibilities.

The Operator Section described how vital their role is in keeping North Carolina state government operating smoothly by, among other duties, placing conference calls and accommodating up to 30 conferees, and assisting with emergency and problem calls.

Next, Andrea Wright of the Billing Section discussed order processing for voice, network, and equipment billing. She also discussed credit card and data billing as well as 800 numbers, radio pagers, and packet switching billing.

The Engineering Section gave a brief history of their section prior to 1988; talked about designing LAN/WAN and transport media to carry voice, data, and video communications; and talked about implementing statewide videoconferencing, statewide 800 mhz radio service, and Integrated Services Digital Network (ISDN) services sometime in the future.

The Analytical Section talked about their areas of responsibility; and reported on embedded base equipment (1A2), electronic keys, private branch exchanges, and the Essex system.

They were followed by the Networks Section. Betty Strickland gave an overview of the North Carolina Integrated Network (NCIN) and described the services provided by the network.

From left to right are SIPS employees Richard Kelly, Sam Rule, and Jack Sasser

Herman Hopper reported on the recently installed X.25 (XDN) State Packet Switched Network. The Packet Switched Network is for use by clients who have needs outside of SIPS's SNA Teleprocessing Network, and non-IBM clients who need peer-to-peer host connections. The Packet Switched Network is already in use by several agencies such as the Department of Revenue and the Department of Crime Control and Private Safety.

Brenda Stovall told the conference about SIPS's Circuit Order Tracking System which orders all the data circuits for the networks, tracks DSU (digital service unit) installation, and provides agencies with weekly status reports on circuit requests.

Richard Kelly reported that the SNA network now serves 16,508 terminals, printers, and personal computers over 327 digital circuits to 1,937 different locations in all 100 counties in the state. He also told the conference that SIPS's Telecommunications Section has been developing standards, guidelines, and plans for the implementation of LAN/WAN and has been acquiring personnel trained in LAN/WAN technology to help SIPS's clients.

Mr. Kelly also reported how SIPS's Network Control Center monitors and diagnoses the networks, on-line applications, and the T-1 backbone 24 hours a day, 7 days a week. The conference also learned that Southern Bell now supplies the communication fiber for state buildings.

After lunch, Ted Shelton of BellSouth reported on the promise versus the reality of ISDN. He explained what ISDN is, what its value is, and who provides the applications for it. He also told of SIPS's transition to integrated digital services, how the intelligent network evolved, and how the customer network is managed.

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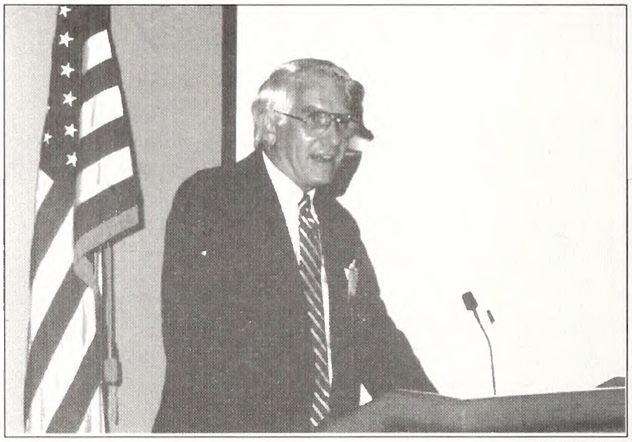
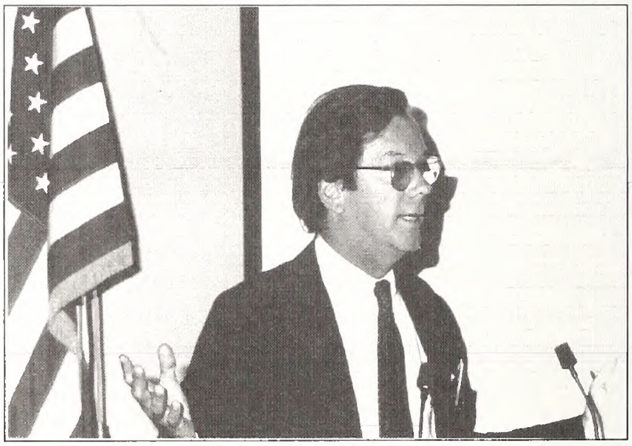
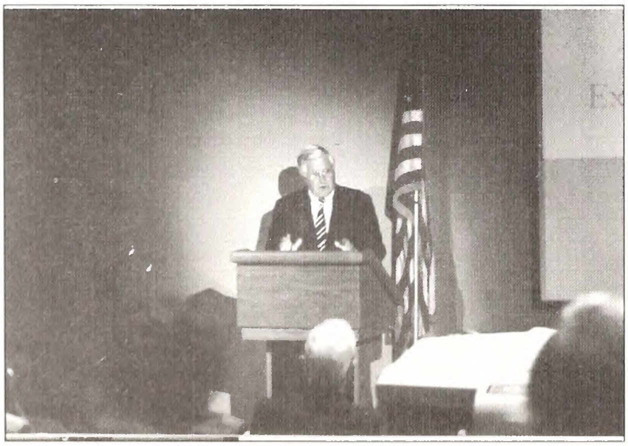
Executive Technology

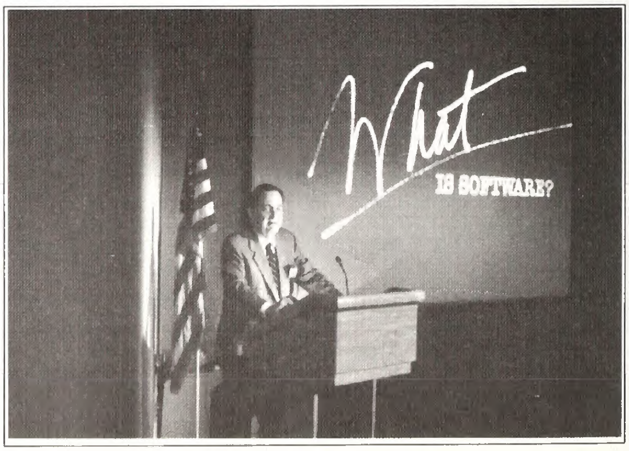
State Controller Fred Talton


Frank Skinner Southern Bell

Lt. Gov. Jim Gardner


Thomas West Data General


Terry Lautenbach V.P.-IBM



John Imlay MSA

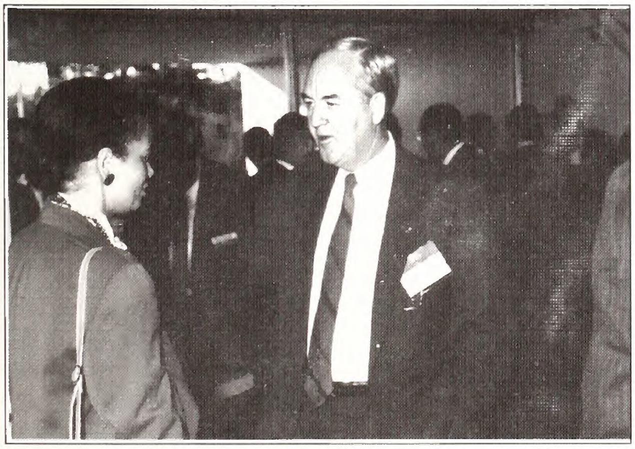
Conference

Charlie Williams SIPS

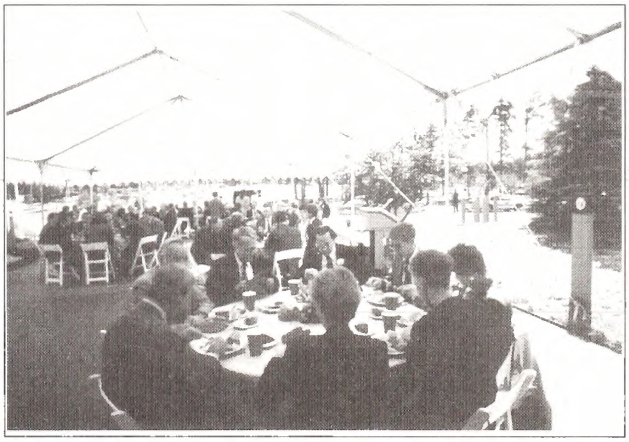
Leroy Martin, NCSU; BillPfeiffer, NorthernTelecom; Tom West and Peter McLean of Data General

Jim Valvano NCSU

Aaron Johnson, Dept of Corrections and William Robinette, Data General



Sara Stephens, SIPS and Ed Renfrow, State Auditor



Conference attendees enjoy outdoor luncheon

Adventures in

WonderLAN

Implementing an Ethernet-Based Office Automation System

By Nancy Kuivila

The subject of local area networks (LANs) strikes fear into the hearts of many DP managers, conjuring up nightmare images of undocumented networks of PCs and printers wired together by junior scientist end users who have long since moved on, leaving no forwarding address. While PC LANs get the most industry press, a LAN is really a general-purpose communications network which can connect a variety of intelligent devices (PCs, minicomputers, mainframes) over moderate distances.

When the former Department of Natural Resources and Community Development (NRCD) planned the implementation of a departmental office automation system, a number of factors made a local area network the ideal communications alternative. Most divisions were headquartered in the Archdale building, distributed throughout ten floors of the fifteen-story structure. Environmental consolidation was imminent, which would merge environmental programs from NRCD with the Division of Health Services from the Department of Human Resources. The office automation system would include two Data General minicomputers, and, given the organizational uncertainties, it was unclear where the equipment (and users) would be permanently housed. A LAN would provide complete flexibility for relocating system equipment and

(see WonderLAN, page 8)

NASIS BECOMES NASIRE

In August 1989, the National Association for State Information Systems (NASIS) changed its name to the National Association of State Information Resource Executives (NASIRE). The change is intended to better respond to the ever-changing world of information resource management by expanding the scope of the association to all aspects of information resource management.

NASIRE, like its predecessor NASIS, is an organization made up of members from all 50 states and the District of Columbia. However, the new organization plans to expand its membership by offering associate memberships to members of federal agencies and local governments.

The organization also plans to publish their newsletter, the "NASIRE Exchange" quarterly instead of semiannually as the old newsletter use to be published.

North Carolina received an award from NASIS in August of 1987 for its information management structure. Last year, SIPS won a special award from NASIS for the creation of the North Carolina Integrated Network (NCIN). North Carolina and SIPS hope and expect to expand on their good fortune with NASIRE.

Policies

(continued from page 2)

plans for managing information resources. SIPS monitors the plans to determine if they conform to the stated direction and the policies of the Commission. The plans are then compiled into the "Annual Information Processing Report and Plan", the third document prepared by the Commission; which is submitted to each session of the North Carolina General Assembly. The three documents are used by SIPS and the Information Technology Commission in a revolving manner. Plans and reports received from state agencies comprise the "Annual Information Processing Report and Plan" which is used to modify the "Strategic Direction" and the "Policies and Procedures Manual." These documents, in turn, influence the plans and reports of the state agencies.

As Mr. Deaton said, "with the approval of the policies, the state now has a clear and comprehensive set of rules and guidelines for effectively managing information technology. The Commission, SIPS, and all departments under the authority of the Commission can take pride in these policies and the cooperative effort which produced them."

Executive

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today’s desktop models, and optical disk storage holding the equivalent of about 300 good-size novels; supercomputers 100 times more powerful than today’s; computers that respond to voice commands; worldwide, high-speed digital telecommunications networks carrying not only voice, but data, image, and video; and we see much more extensive use of knowledge-based systems or artificial intelligence, image processing, and advanced robotic systems.”

> "...widespread use...of personal computers capable not only of high–quality graphics, but full–motion video and audio..." *—Terry Lautenbach, IBM*

Charlie Williams, Chief of SIPS, then moderated a panel discussion of “The Changing Technology Implications for Senior Executives” with Frank Skinner, President of Southern Bell; J. Thomas West, Senior Vice President of the Systems Development Division of Data General Corporation; and John Imlay, Chairman of the Board and Chief Executive Officer of Management Science America, Inc.

Mr. Skinner talked of the development of an “intelligent network” which would let both businesses and residents “call up anything from a voice channel to several video channels without the involvement of the telephone company.”

Mr. West talked about establishing an open, more compatible worldwide computer system. “In the open systems world, the availability of high-level building blocks and conforming to industry standards frees up a massive amount of resources in our industry.”

Mr. Imlay told the conference that “what we see taking place is a view for every decision, a view of the year 2000.”

Mr. Lautenbach and the three panelists all received Honorary Tarheel Awards from Mr. Talton.

Then, Mr. Williams gave a presentation on the “Strategic Direction for Information Technology in North Carolina.” He told the conference that over the next three to five years, “we need to make sure that plans are oriented in support of business solutions, not simply in implementing the latest technological innovations.” He also said, “training is one area that will require more funding if we are to maintain the high level of our qualified workforce.”

Mr. Williams also told the attendees that “state employees, citizens, and businesses will increasingly have on-line or automated access to state government agencies or records. The bottom line is, within proper security controls, to make it easier and more cost effective for citizens to access the information resources of state government.”

The conference members then enjoyed a luncheon highlighted by a speech by Jim Valvano. Mr. Valvano also received an Honorary Tarheel Award.

Following the luncheon, Dr. Matt Kuhn, President of the Microelectronics Center, took the conference attendees on a tour of the newly completed North Carolina Supercomputer Center.

After the tour, the attendees viewed three demonstrations of technology currently in use in state government. Bruce Garner, Senior Systems Analysts at SIPS working with the Governor’s Office, demonstrated an Executive Information System, a customized package of software that helps the executive make decisions better. Jerry Bland of the Department of Public Instruction, Chairman of the SIPS Advisory Board, demonstrated the Voice Response Unit which gives North Carolina school teachers access to their certification information with the use of touch-tone telephones. The final speaker, Karen Siderelis, Director of the Land Resources Information Services of the Department of Environment, Health, and Natural Resources, demonstrated the state’s Geographic Information System, a system which stores, analyzes, and displays geographical information.

(Note: the Land Resources Information Service became the Center for Geographic Information and Analysis in January 1990.)

In conclusion, Mr. Talton spoke of the establishment of “a real atmosphere of cooperation” by the conference. Finally, a drawing was held, and two tickets to Paris (courtesy of American Airlines) were awarded to Bill Robinette of Digital Equipment Corporation. Mr. Robinette is a member of the MCNC Board.

Conference

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Finally, Nancy Kuivila of the Department of Environment, Health, and Natural Resources described how SIPS's Telecommunications Section and her department worked together to implement an Ethernet-based office automation Local Area Network. She gave an overview of the system’s background and told what equipment was required and how much the equipment cost.

“We had an excellent response,” Mr. Rule said of the conference. “It needs to be a yearly event.”

Center

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Computer Center replaced their big tape-reels with tape cartridges about the same size and shape of an eight-track tape. The new tape cartridges are smaller but denser and hold more information with a 38,000 bytes per inch density and a 200 megabyte capacity. The ATL holds about 5,000 tape cartridges (which gives the ATL about a 1 trillion byte non-compressed storage capacity).

These 5,000 tapes (or mounts) in the ATL are only 10 percent of the total number of cartridges in stock, but, according to Henry Murray, "they make up about 90 percent of the active mounts that are requested over and over again."

The Memorex Telex 5400 ATL is a "dynamically managed library" in which the Computer Center determines the frequency of mounts and replaces, within about a week, any cartridges mounted infrequently.

So far, Murray says they like the ATL and have not had any problems with it. He says the new automated library saves time and cuts down on the number of operator positions needed. Welcome to the future.

WonderLAN

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users without major rewiring.

While our Ethernet LAN has been a resounding success, the implementation was fraught with strange happenings bordering on the paranormal. A series of mysterious, intermittent problems kept us hopping, ranging from communications ports which suddenly seized us, to PCs which would communicate only on alternate Thursdays, to terminal jacks which went on strike if left unused for a week. Through a series of methodical troubleshooting procedures (and a few secret exorcism rituals!), we were ultimately able to correct all of these problems. We found that there was always a rational (if often illogical) explanation for such electronic highjinks.

Already, just a few months into our system implementation, we are realizing the benefits of a LAN-based system. The two system processors communicate happily although housed in separate computer rooms, five floors apart. The planned final location for the equipment changes almost daily, and it may be another year before the two systems cohabit the same computer room. Consolidation has brought a number of additional users to the office automation system, and mass moves of users into, out of, and around the building are not uncommon. Despite all this uncertainty, our system implementation proceeds smoothly. We rest easy knowing that our LAN provides us with the flexibility to weather change without affecting the network, the system, or the users.

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